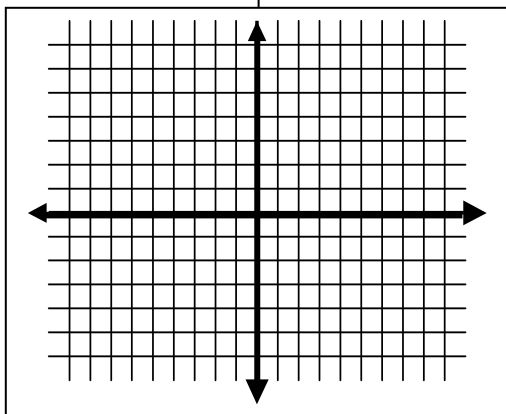


How do you find the solution to a system of linear equations?

$$\begin{aligned}2x + 3y &= 5 \\ 4x - y &= 17\end{aligned}$$

Methods to Solve Systems of Linear Systems

GRAPHING



1. Graph Line 1.
2. Graph Line 2.
3. Visually identify the point of intersection.

Intersecting lines have exactly one solution which is the point of intersection

(x, y)

Parallel lines have no solution because there is no point of intersection



Coinciding lines have an infinite number of solutions (all the points on the line are solutions of the system)

$(x, y) | y = mx + b$

SUBSTITUTION

1. Isolate one variable in one of the equations.
2. Substitute that expression into the second equation and solve for the variable.
3. Substitute the value found in step 2 into either of the original equations and solve for the remaining variable.
4. Write the ordered pair.

What if both of the variables cancel out? Look at the resulting arithmetic equation.
*False statement indicates the lines are parallel so there is no solution.
*True statement indicates the lines coincide so there are infinite solutions.

COMBINATIONS

1. Rewrite each equation in standard form.
2. Choose a variable to eliminate and multiply by appropriate number to eliminate it.
3. Solve for remaining variable either by substituting into one of the original equations or by repeating step 2 for the other variable.
4. Write the ordered pair.